UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/982,720	10/18/2001	Moshe Rock	10638-025001	8722

26161 7590 02/26/2007
FISH & RICHARDSON PC
P.O. BOX 1022
MINNEAPOLIS, MN 55440-1022

EXAMINER	
BEFUMO, JENNA LEIGH	
ART UNIT	PAPER NUMBER
1771	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
2 MONTHS	02/26/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 09/982,720
Filing Date: October 18, 2001
Appellant(s): ROCK ET AL.

Catherine M. McCarty
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed December 15, 2006 appealing from the Office action mailed July 15, 2005.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct. The summary is drawn to claim 1, the sole independent claim.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

3,168,883	PLOCH et al.	2-1965
3,837,943	PLOCH et al.	8-1974
4,103,518	LOMBARDI et al.	8-1978

5,520,022	CALLAWAY	5-1996
5,557,950	RICHARDS et al.	9-1996
2002/0124365	WOOD et al.	9-2002

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

I. Claims 1 – 9, 16 – 18, 25, 30, and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lombardi et al. in view of Ploch et al. '943.

Lombardi et al. discloses a knitting process which produces terry loops on the technical face and technical back by forming the loops in the base fabric while the base fabric is being knitted using a circular knitting machine (column 1, lines 10 – 19). The loops are formed from a loop yarn while the ground fabric is formed with a ground yarn, equivalent to Applicant's stitch yarn (column 6, line 67 – column 7, line 3). Lombardi et al. also discloses that it is known to shear the terry loop fabric to form a knitted velour fabric (column 1, lines 25 – 27). Lombardi et al. fails to teach using heat sensitive material to form the stitch yarn.

Ploch et al. is drawn to pile fabrics. Ploch et al. teaches using heat sensitive fibers as the stitch yarn which bonds the rows of pile yarns to the fibrous base fabric and apply heat to the thread, improving the bonding on the fabric (column 1, line 65 – column 2, line 4). Ploch et al. discloses that the stitching thread comprises one or more filaments, including as least two fiber materials having different thermal characteristics (column 1, lines 54 – 57). The thread can be in the form of multiple filaments twisted together including two filaments of different thermal resistance (column 2, lines 13 – 15). Polypropylene filaments are used as one of the components in the stitching thread (column 2, lines 25 – 27). The stitching thread can also be in the form of a sheath-core fiber with polyethylene terephthalate, a type of polyester, and polyolefin (column 3,

lines 51 – 60). The higher melting polymer, polyethylene terephthalate, is the core component, and the lower melting polymer, polyolefin, in the sheath component. In the examples, the stitching threads are produced to form a fine denier yarn having a linear density of as small as 5.6 tex.

Besides using polymeric materials which melt when exposed to heat, Ploch et al. teaches that the threads can also include thermally shrinkable materials such as polyester to produce especially tight stitching seams (column 3, lines 60 – 63). Further, Ploch et al. discloses that textured stitch yarns, including thermally sensitive filaments and textured filaments, can be used to produce a bulky seam which fills the puncture holes in the base fabric (column 3, line 65 – column 4, line 5). It is noted that the term seams, as used by Ploch et al. herein, refers to multiple rows of stitching yarns which attach loop yarns to the base fabric, by being knitted into the base fabric in a repeating pattern. The fabric is subjected to a heat treatment to soften the lower melting component and bond the fibers together (column 1, lines 60 – 64). The stitching threads pass through the base fabric, so that when heated, the stitching threads bond to or bulk the base fabric. The fabric produced is stable and wear-resistant (column 1, lines 35 – 36). Further, Ploch et al. discloses that using a heat sensitive stitching thread helps makes a stronger bond between the loop yarns and the base layer and improves the stability of the entire fabric (column 1, line 60 – column 2, lines 4).

Thus, Ploch et al. teaches using thermally sensitive yarns which are combined together with the yarns of the base fabric to form a composite pile fabric. Further, the thermally sensitive fibers in the fabric give the pile fabric improved properties by producing a stronger bond between the pile and base fabric, improving the stability and strength of the overall fabric, and bulking the fabric as well filling the holes or spaces in the base layer. Therefore, it would be obvious to one having ordinary skill in the art to use a thermally sensitive filaments as taught by Ploch et al. as the stitching, or ground, yarn in the fabric taught by Lombardi et al. to help increase the bond between

the ground fabric and the pile yarn and produce a stable and wear resistant compound fabric with increased bulk.

Although the limitations of permeability are not explicitly taught by Lombardi et al. or Ploch et al, it is reasonable to presume that said limitations would be met by the combination of the two references. Support for said presumption is found in the use of similar materials (i.e. heat sensitive stitching threads made from hot melt material or thermally shrinkable material) and in the similar production steps (i.e., knitting the stitching thread in the ground fabric to produce a velour fabric) used to produce the double faced velour fabric. The burden is upon the Applicant to prove otherwise. Therefore, claims 1 – 4, 16 – 18, 25, and 37 are rejected.

Claims 5 – 9 are also rejected, since the limitations with respect to the application of the heat are method limitations which are only given weight based on the structure produced by the method and not based on the process limitation itself. Thus, regardless of how the heat is applied to the fabric, the heat sensitive material would respond by melting or shrinking to bond the pile yarns to the ground fabric. Thus, the structure of the final product is taught by Lombardi et al. in view of Ploch et al. as set forth above.

II. Claims 10 – 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lombardi et al. in view of Ploch et al. as applied to claim 1 above, and further in view of Richards et al.

The features of Lombardi et al. and Ploch et al. have been set forth above. Lombardi et al. fails to teach using elastomeric material in the stitching threads. Richards et al. is drawn to knitted plush fabric. Richards et al. teaches including an elastic yarn in the knitted pile fabric to provide the fabric with stretchability (column 2, lines 3 – 7). The elastic fiber is specifically LYCRA®, a type of spandex yarn (column 3, lines 13 – 14). Thus, it would have been obvious to one having ordinary skill in the art to include a elastic fiber in the knitted pile fabric of Lombardi et al. to make

the fabric more stretchable and thus more comfortable to the user. Further, it would have been obvious to one of ordinary skill in the art to combine the elastic yarn heat sensitive material together as a single yarn by various manners, since one of ordinary skill in the art would produce a stitch yarn which would evenly distribute the heat sensitive material and the elastic material throughout the pile fabric. Thus, the binder and elastic material would uniformly bind the pile yarns to the base fabric and the elastic material would give the fabric uniform stretch in various directions. Therefore, claims 10 – 13 are rejected.

III. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lombardi et al. in view of Ploch et al. as applied to claim 1 above, and further in view of Callaway.

The features of Lombardi et al. and Ploch et al. have been set forth above. Lombardi et al fails to teach using a textured yarn. Callaway is drawn to a knitted pile fabric. Callaway discloses using texture polyester yarns in the knitted pile fabric. It would have been obvious to one having ordinary skill in the art to use a texture yarn in the knitted pile fabric. Texturing the yarn would add bulk to the pile and ground yarns making the fabric look and feel bulkier and softer. Thus, claim 24 is rejected.

IV. Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lombardi et al. in view of Ploch et al. and Richards et al., as applied to claim 10 above, and in further view of Wood et al.

The features of Lombardi et al., Ploch et al., and Richards et al., have been set forth above. Lombardi et al. fails to teach entangling the pile yarns. Wood et al. is drawn to pile fabrics. Wood et al. teaches hydraulically treating the pile fabric to tease the pile yarns (page 1, paragraph 7). The fluid treatment can be performed over the entire fabric to produce a patterned fabric (page 1, paragraph 9). Therefore, it would have been obvious to one of ordinary skill in the art to

hydraulically treat the surface, as taught by Wood et al., the plush fabric taught by Lombardi et al. to produce a patterned surface which is aesthetically pleasing to the consumer. Therefore, claims 14 and 15 are rejected.

(10) Response to Argument

I. The applicant argues that one of ordinary skill in the art would not be motivated to use the heat sensitive yarn of Ploch et al. in Lombardi et al. because Ploch et al. does not teach using the heat sensitive yarn to make the entire ground structure of the pile fabric (Appeal Brief, page 5). In fact, the applicant argues that Ploch et al. provides no suggestion to use heat sensitive yarns in the base at all. However, the heat sensitive yarn in Ploch et al. forms part of the base structure of the composite pile fabric because the heat sensitive stitching yarns are knitted through the base fabric and form a layer of stitches on the opposite surface of the base fabric as a result of stitchbonding the pile yarns. Ploch et al. is producing a fabric structure typified by US Patent 3,168,883, also assigned to Ploch et al. The figure in Ploch et al. '883 shows that the stitching yarns cross over the pile yarns and then pass through the entire fabric base with an exposed portion on the opposite surface. The rows of stitching yarns are located wherever the pile yarns are. Thus, the heat sensitive, stitching yarn forms an integral portion of the base fabric. Therefore, Ploch et al. teaches that having a heat sensitive yarn which attaches the pile yarns to the base fabric and is an integral part of the base fabric increases the bond strength and dimensional stability of the entire base fabric and produces a stable and wear resistant material (column 1, lines 25 – 30).

Additionally, one of ordinary skill in the art would recognize that the heat sensitive yarn can be used in various pile fabrics as the yarn that interlocks the pile yarn to the composite structure. And in the case of knit pile fabrics the yarn that interlocks the pile yarn to the composite fabric is also the yarn used to form the ground fabric. Within the knitting technology there are various

knitting processes and knitting patterns that can be used to produce knitted pile fabrics and one having ordinary skill in the art would appreciate that the materials used in these fabrics can also be used in other types of knitted fabrics interchangeably. Thus, it would be obvious to use the heat sensitive yarn as the ground yarns which both interlocks with the pile yarns and forms the base fabric. There is nothing in Ploch et al. or Lombardi et al. that teaches away from using a heat sensitive yarn as the ground yarn. Further, one would still expect that the finished fabric will have the improved stability and wear resistance, when the heat sensitive yarn is used to form the base fabric and interlock with the pile yarns.

Further, the applicant argues that knitted pile fabrics do not need to have improved bonding between the pile and base fabric (Appeal Brief, page 5). While it is true that a knitted pile fabric has the pile yarns interlocked with the base yarns, the pile yarns can still be snagged or pulled, causing some yarns to extend out farther and some yarns to become shorter. The interlocking does not prevent the pile yarns from moving or unraveling. In fact, knit fabrics can be easily unraveled when they become worn or cut. Thus, the pile yarns of a knit pile fabric, while they are more strongly bonded to the base than some other types of pile fabrics, can be pulled or removed from the fabric marring the appearance of the overall fabric. Therefore, one of ordinary skill in the art would desire improved bond strength in knit pile fabrics. Improving the bond strength between the pile yarns and base fabric by using heat sensitive materials which are not only interlocked by knitting, but physically bonded to each other as well, would improve the overall durability and wear resistance of the fabric.

Finally, the applicant argues that Ploch et al. fails to disclose that the fabric bulks, and instead argues that only the seams bulk (response, page 5 – 6). However, as set forth above, the seams are actually multiple rows of stitches formed by the stitching yarns bonding the pile yarns to

the base fabric. The stitching yarns pass entirely through the base fabric and form a layer of stitches on the opposite surface of the base fabric as well. Thus, as these stitching yarns and seams shrink the entire base fabric will contract along with the stitches. Thus, the entire fabric contracts to some degree, creating a bulkier and denser fabric, since the fabric comprises the same amount of material in a smaller area. And, as a result of increasing the density of the fabric, the permeability of the fabric is decreased. Thus, Ploch et al. teaches that using heat sensitive material within the base fabric creates a bulkier fabric, by shrinking said heat sensitive material. One of ordinary skill in the art would appreciate that using thermally sensitive yarns within the base layer blended into the ground yarns or as stitching yarns, would inherently create a fabric which can be heat treated to form a bulkier, denser fabric.

Therefore, Ploch et al. provides various motivation to use the heat sensitive yarns the base layer of knitted pile fabrics. Specifically, Ploch et al. teaches that heat-sensitive yarns in the base layer of a composite pile fabric can improve the stability and wear resistance of the fabric, can more strongly bond the pile material to the base layer, and can improve the bulk of the fabric. One of ordinary skill in the art would be motivated to use heat sensitive yarns in pile fabrics to thermally bond the pile yarns to the base fabric, improve the stability and wear resistance of the fabric, and increase the bulk or density of the pile fabric. Thus, the rejection is maintained.

II. The applicant argues that the rejection based on Lombardi et al., Ploch et al., and Richards et al. fails to teach the claimed product because Richards et al. fails to using heat sensitive yarns in the ground fabric of a knitted pile fabric (Appeal Brief, page 6). However, for the reasons addressed above, this feature is taught by Lombardi et al. and Ploch et al. Therefore, Richards et al. does not need to teach this feature. Thus, the rejection is maintained.

III. The applicant argues that the rejection based on Lombardi et al., Ploch et al., and Callaway fails to teach the claimed product because Callaway fails to using heat sensitive yarns in the ground fabric of a knitted pile fabric (Appeal Brief, pages 6 – 7). However, for the reasons addressed above, this feature is taught by Lombardi et al. and Ploch et al. Therefore, Callaway does not need to teach this feature. Thus, the rejection is maintained.

IV. The applicant argues that the rejection based on Lombardi et al., Ploch et al., Richards et al., and Wood et al. fails to teach the claimed product because Wood et al. fails to using heat sensitive yarns in the ground fabric of a knitted pile fabric (Appeal Brief, page 7). However, for the reasons addressed above, this feature is taught by Lombardi et al. and Ploch et al. Therefore, Wood et al. does not need to teach this feature. Thus, the rejection is maintained.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Jenna-Leigh Befumo

Conferees:

Terrel Morris

Jennifer ~~Kolb~~ Michener

JENNIFER MICHENER
QUALITY ASSURANCE SPECIALIST